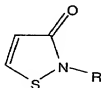
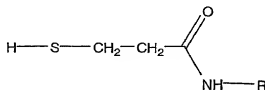


WHAT IS CLAIMED IS:

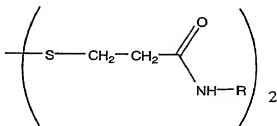
1. A method of producing 2-alkyl-4-isothiazoline-3-one represented by general formula (III)



(wherein R represents C1 to C8 alkyl groups or aralkyl groups) characterized by the fact that the compound represented by formula (I)



(wherein R has the same significance as in aforementioned formula (III)) or the compound represented by formula (II)



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(wherein R has the same significance as in aforementioned formula (III)) is reacted in a solvent in which hydrogen chloride is insoluble or has low solubility with a chlorinating agent with a ratio of two mol equivalents of chlorinating agent per mole of the compound of formula (I) or three mol equivalents of chlorinating agent per mol of the compound of formula (II).

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2. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 1 in which aforementioned solvent is an organic solvent.

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3. The method of producing 2-alkyl-4-isothiazoline-

3-one stated in Claim 2 in which aforementioned organic solvent is selected from among halogenated aliphatic hydrocarbons, halogenated aromatic hydrocarbons, and aliphatic hydrocarbons.

5 4. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 3 in which aforementioned solvent is selected from at least one of the following: Dichloromethane, dichloroethane, trichloroethane, tetrachloroethane, chloroform, carbon tetrachloride, monochlorobenzene, dichlorobenzene, pentane, hexane, cyclohexane, heptane, octane.

10 5. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 1 in which aforementioned solvent is inert to the compounds of formula (I), formula (II), formula (III), and to the chlorinating agent.

15 6. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 5 in which aforementioned solvent is an organic solvent.

20 7. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 6 in which aforementioned organic solvent is selected from among halogenated aliphatic hydrocarbons, halogenated aromatic hydrocarbons, and aliphatic hydrocarbons.

25 8. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 7 in which aforementioned solvent is selected from at least one of the following: Dichloromethane, dichloroethane, trichloroethane, tetrachloroethane, chloroform, carbon tetrachloride, monochlorobenzene, dichlorobenzene, pentane, hexane, cyclohexane, heptane, octane.

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9. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 1 in which the solubility of hydrogen chloride in the aforementioned solvent at normal temperature/pressure is less than 0.04 in molar fraction.

10. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 9 in which aforementioned solvent is an organic solvent.

11. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 10 in which aforementioned organic solvent is selected from among halogenated aliphatic hydrocarbons, halogenated aromatic hydrocarbons, and aliphatic hydrocarbons.

12. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 11 in which aforementioned solvent is selected from at least one of the following: Dichloromethane, dichloroethane, trichloroethane, tetrachloroethane, chloroform, carbon tetrachloride, monochlorobenzene, dichlorobenzene, pentane, hexane, cyclohexane, heptane, octane.

13. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 1 in which aforementioned solvent is inert to the compounds of formula (I), formula (II), formula (III), and to chlorinating agent, and in which the solubility of hydrogen chloride at normal temperature/pressure is less than 0.04 in molar fraction.

14. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 13 in which aforementioned solvent is an organic solvent.

15. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 14 in which aforementioned

5 organic solvent is selected from among halogenated aliphatic hydrocarbons, halogenated aromatic hydrocarbons, and aliphatic hydrocarbons.

16. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 15 in which aforementioned solvent is
10 selected from at least one of the following: Dichloromethane, dichloroethane, trichloroethane, tetrachloroethane, chloroform, carbon tetrachloride, monochlorobenzene, dichlorobenzene, pentane, hexane, cyclohexane, heptane, octane.

15 17. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 1 in which aforementioned R represents a methyl group.

18. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 1 in which aforementioned R is a normal
20 octyl group.

19. The method of producing 2-alkyl-4-isothiazoline-3-one stated in Claim 1 which contains the filtration of the hydrochloride salt of the compound of formula (III) resulting from the reaction of the compound of formula (I) or formula
25 (II) with a chlorinating agent, and washing the hydrochloride salt with a solvent which is inert and has low solubility of the hydrochloride salt.